

METHOD FOR PREVENTING THE FORMATION OF SECONDARY
REACTION ZONE IN SUSCEPTIBLE ARTICLES, AND
ARTICLES PREPARED BY THE METHOD

ABSTRACT

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A coated nickel-base superalloy article, which is otherwise susceptible to the formation of a secondary reaction zone, is prepared by furnishing a nickel-base superalloy article substrate having thereon an initial aluminum-containing coating comprising an initial-coating additive zone and an initial-coating diffusion zone. The article is susceptible to the formation of the secondary reaction zone if heated to an elevated SRZ reaction temperature for an SRZ reaction period of time. The formation of the secondary reaction zone is avoided by first removing the initial-coating additive zone and the initial-coating diffusion zone, and thereafter depositing a subsequent aluminum-containing coating onto the article substrate. The subsequent aluminum-containing coating includes a subsequent-coating additive zone and a subsequent-coating diffusion zone. The article substrate with the subsequent aluminum-containing coating is otherwise susceptible to the formation of the secondary reaction zone if heated to the elevated SRZ reaction temperature for the SRZ reaction period of time.